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**FINAL PROGRAMMATIC  
ENVIRONMENTAL IMPACT STATEMENT  
FOR THE  
STATE OF MONTANA  
EMERGENCY GRASSHOPPER CONTROL  
PROGRAM**

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**Prepared by the  
Environmental Management Division  
of the  
Montana Department of Agriculture**

**December 1989**

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**FINAL**  
**PROGRAMMATIC ENVIRONMENTAL IMPACT**  
**STATEMENT**  
**FOR THE**  
**STATE OF MONTANA EMERGENCY GRASSHOPPER**  
**CONTROL PROGRAM**

Prepared by the  
Environmental Management Division  
of the  
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December 1989



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Acknowledgements:

The authors wish to acknowledge all the individuals who assisted in the preparation of this programmatic environmental impact statement. Those individuals that assisted in the research and editing or gave significant input on the document include:

Montana Department of Agriculture Staff; Steve Baril, Gary Gingery, Phil Johnson, Dan Sullivan, and Judee Wargo.

Non-staff assistance from; Terry Angevick, Bob Gillespie, Kevin Hart, Bill Kemp, Nancy Matheson, and Jerome Onsager.

Desk top publishing on both the draft and final EIS was performed by staff member; Janet Kirkland.



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## Introduction

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This document in combination with the draft programmatic environmental impact statement (DPEIS) will comprise the final programmatic environmental impact statement (FPEIS) for the State of Montana Emergency Grasshopper Control Program. The purpose of this document is to clarify the issues that were unclear in the DPEIS and to correct substantive errors that were identified in the DPEIS during the review period. The emergency cropland grasshopper control program should not be confused with the federal rangeland grasshopper control program which is managed by the USDA-APHIS. The following includes a summary of the FPEIS, amendments to the DPEIS, comments received on the DPEIS, and the department's response to those comments.

The Final Programmatic Environmental Impact Statement for the State of Montana Emergency Grasshopper Control Program consists of the following:

- I. Draft Programmatic Environmental Impact Statement for the State of Montana Grasshopper Emergency Control Program (Issued June 30, 1989, incorporated by reference as a part of the FPEIS).
- II. Modifications to the DPEIS.
- III. Addendum:
  - A. Written comments received
  - B. Montana Department of Agriculture response to comments.

## Summary

Severe grasshopper outbreaks in eastern and central Montana in 1985, 1986, and 1987 prompted the Governor to declare an emergency which provided producers with a source of financial assistance for grasshopper control. The program provided a maximum 1/3 cost share on one control treatment in 5 to 8 counties in any one year. The program provided financial assistance to an average of 857 producers per year for the treatment of 427,480 acres each year.

The DPEIS discusses; background information on grasshopper biology, control, history in Montana; the emergency program and other related state and federal programs; the affected environment; potential effects of insecticide use on the environment; and alternatives available to the state in the event of a grasshopper emergency and alternatives that may reduce the occurrence of severe grasshopper outbreaks.

The document makes the assumption that any additional increase in insecticide use to control grasshoppers beyond that which is normally performed by producers is not desirable with respect to health and environmental impacts. This assumption is not based on documented cases of environmental impacts in Montana, but rather is based on the potential effects of insecticide use on the environment. There was little economic data and no specific environmental data collected during the program since implementation of the program was not predictable.

The DPEIS demonstrates that very few individual producers actually benefit from the current emergency program and that the economic benefits are minimal when compared to the potential environmental impacts. The document rejects 4 alternatives and considers 8 total alternatives to the current program. Three of these are emergency response alternatives and 5 are non-emergency alternatives that discuss mitigating actions to reduce the occurrence of severe grasshopper outbreaks. These alternatives are as follows:

- A. Rejected Alternatives
- B. Emergency Alternatives Considered
  - 1) No Action
  - 2) Elimination of State Emergency Program
  - 3) Targeting State Assistance
- C. Non-Emergency Alternatives Considered
  - 1) No Action
  - 2) IPM Development Program
  - 3) State Supported Research

- 4) State Assisted Grasshopper Roadside Control
- 5) Integrated Grasshopper Management

The department has chosen to recommend the following alternatives as possible future programs based on their potential economic and environmental benefits as compared to the current program:

- 1) Emergency alternative--Elimination of State Emergency Program (B2)
- 2) Non-Emergency alternative--State Supported Research (C3)

The department feels that additional research in long term grasshopper control must be performed to develop more tools to be implemented in either the IPM development or IGM alternative (C2 and C5). The department would support the latter two alternatives once sufficient tools have been developed. However, any final decision on approval of a grasshopper management program must ultimately be formulated and directed by the Legislature and the Executive Branch of State Government.

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## II

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### MODIFICATIONS TO THE DRAFT PEIS

The Draft Environmental Impact Statement for the Montana Grasshopper Emergency Program will become a part of the Final Environmental Impact Statement with the following inclusions, deletions, and amendments to the DPEIS. Individual sentences will have deletions marked by interlining and amendments marked by underlining.

On page 1, paragraph 1, sentence 5 will be modified:

"In either case, producers in areas of grasshopper outbreaks may experience extensive crop loss, ~~destruction of rangeland and wildlife habitats~~ and economic damage to rangeland."

On page 8, paragraph 2, the last sentence will be modified:

"Both of these factors inhibit the activity of ~~microsporidian parasites and~~ pathogens of ~~(i.e. *Nosema locustae*)~~ grasshoppers."

On page 10, paragraph 2, sentence 2 will be modified:

"These practices must also be employed prior to the presence of a grasshopper outbreak ~~which further reduces their desirability~~ which has reduced the use of such cultural practices in the past because many producers will not act on an insect problem until they feel there is imminent danger to their crop."



On page 10, paragraph 3, sentence 4 will be modified:

"Insecticide sprays generally achieve initial grasshopper mortalities of 95% or greater if they are applied prior to grasshoppers reaching adult stages fourth instar."

On page 10, paragraph 4, after sentence 1 the following will be inserted:

"Insecticides may not give effective control if they are applied after the grasshoppers are beyond the third instar. Most insecticides give relatively short term control and thus may require multiple applications during the growing season."

On page 10, paragraph 4, sentence 4 will be modified:

"Insecticides are generally not ~~host~~ target specific...."

On page 13 following the Grasshopper Control section (which ends on page 13) the following sub-heading and text will be inserted:

## **Mitigating Actions to Reduce Grasshopper Infestations**

The purpose of this section is to identify the potential actions that producers might take to reduce the occurrence of grasshopper outbreaks. Mitigating actions are also discussed in Chapter 6 as part of the Non-Emergency Alternatives; however, the following is given as background information for the reader rather than presented as a program to be adopted by the state.

The problem with this approach is that the grasshopper emergencies that are discussed in this document are widespread and thus cover a large geographic area. Localized grasshopper outbreaks are not handled by the state emergency program. Individual control efforts may reduce local grasshopper problems, but will not mitigate the occurrence of grasshopper emergencies for the state as a whole unless a majority of producers in the state take up such preventative action. As seen in the previous section, emergency control measures are primarily insecticide spraying of grasshoppers. These do not give long term control of

grasshoppers and may actually worsen the situation by damaging natural predators.

It has been the observation of the MDA that producers generally do not implement preventative grasshopper control measures during periods of low grasshopper populations. No large scale preventative programs or unified actions by producers have been documented as mitigating the occurrence of grasshopper outbreaks. The following information discusses possible actions that individuals might take to reduce the impact of grasshopper outbreaks and perhaps ultimately reduce the need for grasshopper emergency declarations.

Researchers have yet to determine how to predict grasshopper outbreaks. However, the use of USDA-APHIS grasshopper counts, personal field counts, moisture predictions, and temperature predictions can help in determining the likelihood of an outbreak. Even if population counts are low in a given area, mid-season migration of grasshoppers may result in severe crop damage.

To reduce the impact of grasshopper outbreaks, individual producers must consider their cropping practices and local field conditions such as:

- 1) Management of field margins or neighboring rangeland.
- 2) Planting dates.
- 3) Crop varieties (cultivars).
- 4) Tillage practices.
- 5) Agricultural chemical use.
- 6) Other management practices.

If any of these practices favor grasshopper development, then alternatives that will not adversely affect net returns of the crop should be considered. Any practices that inhibit the development of natural predators and pathogens of grasshoppers will favor grasshopper development. Some of the following practices need to be further developed by researchers or field tested by producers on a small scale prior to implementation on a large scale.

- 1) Management of Field Margins or Neighboring Range.

As stated by Onsager (1987), "any range management practice that opens up the plant canopy will tend to improve the microhabitat, either temporarily or permanently to pest species of grasshoppers". Thus, attempts to limit over grazing may be beneficial. Hewitt and Berdahl (1984) reported on resistant strains of alfalfa that could be interseeded in range to reduce grasshopper damage. Grasshopper populations in margins may be suppressed by treating

with Nosema locustae bait when grasshoppers are not present in great numbers, thus building up the presence of the pathogen.

## 2) Planting Date

Early seeding of spring crops early may allow plants to become large and vigorous prior to the onset of feeding by grasshopper nymphs. Migrating adult grasshoppers will be more attracted to young green material than to early seeded drying grains.

## 3) Cultivar of Choice

Unfortunately there is very little information available on grasshopper resistance in small grain cultivars commonly used in Montana. A recent article by Olfert et al. (1988) discusses grasshopper resistance of various Canadian grain varieties, but included few cultivars that are used in Montana. Hewitt and Berdahl (1984) have identified grasshopper resistance in some strains of alfalfa. This is an area that requires further research.

## 4) Tillage Practices

The department does not suggest the use of cultivation practices solely for the purpose of destroying grasshopper eggs. Though cultivation will have an adverse effect on eggs, such tillage practices may increase soil erosion and reduce soil moisture. Fall tillage of fallow land will discourage egg laying and will eliminate a food source for the young grasshoppers.

## 5) Agricultural Chemical Use

Use of non-selective synthetic pesticides to control various crop pests may destroy or repel many predators, parasites, and pathogens of grasshoppers. Destruction of these as well as other beneficial organisms may enhance grasshopper population increases if weather favors their development. Insecticide damage of insect and bird predators and parasites of grasshoppers may be a significant problem. One must also consider the cost versus the benefits of chemical control.

Use of chemical baits or spot treatment of fields with insecticides may effectively reduce grasshopper populations without adversely affecting natural predators or parasites of grasshoppers. Only those insects that consume vegetative materials should have the potential to be affected by the bait.



#### 6) Other Management Practices

Preventative management practices that might be employed to reduce grasshopper problems include the preparation of trap strips. Trap strips are vegetative strips adjacent to a crop that will collect nymphs and migrating adults into small areas where they can be more effectively controlled.

To make a trap strip for nymphs in the spring, the soil along the field border must be tilled to form a plant-free guard around the field to be cultivated. This bare strip must be at least 30 feet wide. A green unworked trap strip is then left next to the tilled strip. This trap strip must also be at least 30 feet wide. This process may be repeated if field populations of grasshoppers warrant more trap strips. All green vegetation in the plant-free strips must be eliminated to prepare an effective trap strip. Once migration is complete, controls can be applied to the strip and an adjacent strip of the crop. Such treatment may not be cost effective on small fields.

Trap strips can also be used as a tool for grasshopper control in mid to late July. A 20 to 25 foot strip of wheat or barley is planted around the crop in late June and seeded with a systemic insecticide. Grasshoppers that migrate into the lush forage consume the systemic insecticide along with the young wheat or barley and are killed.

Scouting of fields early in the season is extremely important in the control of grasshoppers. Besides the fields themselves, roadsides, field margins, neighboring rangeland, and Conservation Reserve Program (CRP) lands should be inspected for the presence of first and second instar nymphs. These areas can then be treated with Nosema bait, insecticide baits, or low toxicity insecticides.

On page 18 (Literature Cited) before Hewitt 1979, the following will be inserted:

Hewitt, G.B. and J.D. Berdahl. 1984. Grasshopper food preferences among alfalfa cultivars and experimental strains adapted for rangeland interseeding. *Environ. Entomol.* 13:828-831.

On page 27, paragraph 3, sentence 1 and 2 will be modified:

~~"This type of program makes sense in Montana. Unfortunately, it~~  
The USDA-APHIS Cropland Protection Program has not been a widely publicized program in Montana and not many producers have taken advantage of it.

On page 28, paragraph 2, sentence 3 will be modified:

"Eventually ~~they~~ any of the 4 to 5 crop destructive grasshopper species may end up in cropland...."

On page 29, paragraph 2, sentence 2 will be modified:

"The Department of Agriculture passed emergency rules implementing a funding mechanism for the ~~equitable~~ distribution of funds...."

On page 29, paragraph 2 after sentence 2 the following will be inserted:

"In 1986 the emergency rules were changed to make the distribution of funds more equitable for individual counties. The distribution of funds was now to be based on cost of control treatment rather than number of acres treated."

On page 30, paragraph 5, sentence 1 will be modified:

"The USDA-APHIS personnel also met with producer groups in early spring to inform producers of ~~their fall egg counts and~~ where projected grasshopper problems might occur."

Page 31, paragraph 1, sentence 3 will be modified:

"The MSUES and MDA have been, or are currently involved in IPM programs which serve to educate and implement an integrated approach to pest management (Bain 1982, Bain 1978, Lindh et al. 1987).

Page 31, the heading after paragraph 2 will be modified:

~~"Results of the Emergency Program".~~  
"Summary of Past Emergency Programs".

On Page 32 after paragraph 1, the following table and text will be inserted:

"           Producers in individual counties received state assistance based on either the pro rata share; 2 mill equivalent; or 1/3 the cost

of the program, whichever was the least. Supplemental Table 1 gives the breakdown of funding distribution for 1985 (also see Appendix B-1). It is readily seen that the dollars received by producers and counties varied widely from county to county. As a result of this the funding mechanism was changed for the 1986 program so that state funds would be divided on a basis of comparing total statewide program costs to the cost for each county. This did not totally solve the equity problem; however, it did tend to stabilize the state's participation on a per acre basis."

Supplemental Table 1. State distribution of funds for the 1985 state grasshopper emergency program (dollars). Starred (\*\*) value is that which was used in the program.

County	Pro Rata Share acres-cost	2 Mill Equivalent	1/3 Cost of Program
Carter	21,806	**12,913	18,233
Judith Basin	**15,770	16,914	19,583
Pondera	60,639	**43,480	62,920
Prairie	40,853	**11,704	31,090
Sheridan	179,753	170,024	**112,021
Wibaux	**30,075	55,120	24,876

On page 35 after paragraph 6 the following table and text will be inserted:

" Individual county acreage claims listing the specific pesticides used were not required to be submitted to the MDA until 1987. Thus, the best estimate of product use for each year of the program is given by the acreage figures for the 1987 program (Supplemental Table 2).

Supplemental Table 2. Total product use for the 1987 state grasshopper emergency program.

Insecticide	Acreage Treated	% of Total
Carbofuran	145,216	43.6
Parathion	78,801	23.5
Malathion	45,216	13.5
Acephate	19,179	5.7
Carbaryl	18,924	5.6
Dimethoate	13,843	4.1
Misc. (fenvalerate, <u>Nosema</u> , Diazinon, Chlorpyrifos)	12,686	3.8
Total	334,583	---

On page 37 (Literature Cited) the following will be inserted after Angevick 1988:

Bain, O. 1982. Montana pest management program 1980, 1981. MT Dept Ag. EMD. Tech. Rept. 82-2. 21pp.

Bain, O. 1978. Alfalfa seed pest management. MT Dept. Ag. First Ann. Rept. 16pp.

Lindh, C., M. McLendon, and D. Ingles. 1987. Integrated crop and pest management 1985-1986 field summary. MT Coop. Ext. Ser. Bul. 1348. 100pp.

On page 57, paragraph 2, sentence 1 will be modified:

"...and are home to elk, deer, ~~bear~~, ..."

On page 59 (Literature Cited), above Montana Bur. Bus. & Econ. Res. 1988. insert:

Montagne, C., L.C. Munn, G.A. Nielsen, J.W. Rogers, and H.E. Hunter. 1982. Soils of Montana. Montana Ag. Exp. Stn. Bull. # 744. 95 pp.

On page 60, paragraph 1, sentence 2 will be modified:



"...insecticides are currently the most effective and reliable form of immediate, short term grasshopper control".

On page 63, paragraph 3, sentence 8 will be deleted.

On page 64, paragraph 3, sentence 6 will be modified:

"Based on information that the MDA has gathered from enforcement cases, systemic soil applied insecticides, spills, filling or rinsing of spray equipment near streams or shallow wells, and misuse of insecticides are the greatest cause of surface water contamination have a greater potential to contaminate surface water than foliar applications of insecticides at the label rate for grasshoppers."

On page 69, paragraph 2, sentence 2 will be modified:

"The short half life of most of these compounds in water greatly reduces the likelihood of chronic poisoning of humans, wildlife, and aquatic organisms (see Appendix D)."

On page 75, paragraph 2, sentence 1 will be modified:

"Mallard ducks and pheasants are extremely sensitive to parathion, disulfoton, diazinon, methyl-parathion, carbofuran, mevinphos and phorate (Table 9).

On page 76, paragraph 1, sentence 5 will be modified:

"...coyotes, foxes and other large mammals consume large quantities of these high protein insects during summer months (Lavigne and Pfadt 1966)."

On page 78, paragraph 1, sentence 6 will be modified:

"There would be less potential for accumulation of organophosphates and carbamates in the human body (Obrien 1967)."

On page 80, paragraph 6, sentence 2 will be deleted.

On page 84 (Literature Cited), after Moore and Looper insert:

Obrien, R.D. 1967. Insecticides, Action and Metabolism. Academic Press. New York. 332 pp. (p. 291).

Onsager, J.A. 1984. A method for estimating economic injury levels for control of rangeland grasshoppers with malathion and carbaryl. J. Range Mngt. 37:200-203.

On page 85 (Literature Cited) after Rands and Sotherton 1986 insert:

Sanborn, J.R., J.L. Metcalf, and B.M. Francis. 1977. The degradation of selected pesticides in soil: A review of published literature. EPA-600/9-77-002. 616 pp.

On page 91, paragraph 2, sentence 3 will be modified:

~~"It loses much of its efficacy~~ Once the majority of grasshoppers have reached the third instar, baits become less palatable and effective grasshopper control will require a higher rate of application."

On page 91, paragraph 4, after sentence 4 the following sentence will be inserted:

"If biologicals are developed that are satisfactory for use in an emergency program this emergency alternative could then be considered."

On page 94, paragraph 5, sentence 1 will be modified:

~~"If the program~~ With increased insecticide use under the current program, human health may be affected by increased exposure to pesticides.

On page 95, paragraph 4, sentence 1 will be modified:

"There is a ~~remote~~ chance that users of public lands might see a reduction..."

On Page 95, paragraph 4, sentence 5 will be deleted.

On page 97, paragraph 1, sentence 1 will be modified:

"There is no evidence available to suggest that continuous insecticide use will decrease the occurrence of grasshopper infestations (Lockwood et al. 1988)."

On page 99, paragraph 4, sentence 1 will be modified:

"The slight decrease in insecticide use by not running the current program should be beneficial to wildlife ~~in the short run~~."

On page 109, paragraph 3, sentence 3 will be modified:

"Insecticides ~~are not~~ have not been identified as a major pollutant of water resources in Montana."

On page 111, paragraph 2, sentence 2 will be modified:

"...many other states are implementing long term insect control strategies via integrated pest management and sustainable agriculture (Keeney 1989, Neher 1989)."

On page 114, paragraph 2, after sentence 1 the following will be inserted:

"The MDA would also hire additional staff to coordinate an IPM program including, but not limited to, an IPM specialist and a laboratory technician."

On page 118, paragraph 2, sentence 1 and 2 will be deleted and replaced by the following.

"Conventional farming practices may result in a more weed free appearance than an IPM field. In an IPM field weeds would not be controlled by chemical means unless the weeds were causing an economic loss to the crop which was in excess of the cost of herbicidal control. Many producers are concerned about the appearance of the field and potential loss of moisture to weeds and may control weeds regardless of the economics."

On page 127, paragraph 1, sentence 4 will be modified:

"...and would have to include funding for at least 10 field scouts and increased technical staff."

On page 133, paragraph 3, sentence 1 will be modified:

"Additional technical staff would be hired and field scouts would be hired annually following academic winter quarter and work through mid-August."

On page 141 (Literature Cited) after Johnson et al. 1988 insert:

Keeney, D.R. 1989. The Leopold Center for sustainable agriculture: The first year. Iowa State University Report. 10 pp.

and after Lindh et al. 1987 insert:

Lockwood, J.A., W.P. Kemp, and J.A. Onsager. 1988. Long-term, large-scale effects of insecticidal control on grasshopper populations (Orthoptera:Acrididae). J. Econ. Entomol. 81:1258-1264.

and after Mukerji et al. 1981 insert:

Neher, N. 1989. Sustainable agriculture program of Wisconsin. Agricultural Resource Management Division. Wisconsin Dept. of Agriculture. 35pp.

Following page 151 the emergency rules for 1985 (see Appendix A) will be inserted.

On page 181, item IV, sentence 2 will be modified:

~~"The research would be carried out by the MDA and interested producers and would be based on current research and information gleaned from the program. The funding for research would be distributed and managed by the MDA."~~

On page 193 (Glossary) after definition of Protozoan insert:

"Rare Species--Any species of plant or animal that are seldom occurring or found within a particular region, though are not in danger of extinction."



On page 194 (Glossary) after definition of Sensitive Area insert

"Sensitive species--Any plant or animal that is easily hurt or damaged due to it's delicate nature or position in a local ecosystem."

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### III

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## ADDENDUM

The department extends appreciation to those who reviewed the Draft Environmental Impact Statement for the State of Montana Emergency Grasshopper Control Program and submitted written comments. The following is a reproduction of all written comments received.

All comments that are substantive were addressed by either correcting the mistake or deficiency in the text (previous section) or by responding to individual comments. Those comments that are not preceded by a number were either considered to be not substantive in nature, were addressed in the DPEIS, or resulted in a correction in the text and these comments are preceded by an E (for Edit). Each comment that was responded to is bracketed and has a number placed next to it. This number refers to a specific response sequentially numbered in Part III. B.

### **III**

#### **ADDENDUM**

##### **A. Written Comments Received**



**Alternative Energy Resources Organization**  
44 N. Last Chance Gulch, #9, Helena, Montana 59601  
406-443-7272

August 11, 1989

DEIS  
Environmental Management Division  
Montana Department of Agriculture  
Capitol Station  
Helena, MT 59620

Dear Mr. Gingery

AERO would like to compliment the Department of Agriculture, especially the Environmental Management Division, for the job it has done on the preliminary grasshopper program EIS. The strength of the alternatives section, the real heart of the document, is especially commendable.

AERO expects that the MDA will choose a preferred alternative (proposed action) in the final EIS since it did not do so here. That will be a critical component of the much needed policy debate on the role of the Department in agricultural pest control, especially as it relates to its obligation under the Cropland Insect Detection and Management Act.

We will offer comments on some areas of general concern in this letter. See the attachment for additional, more specific comments.

**General comments**

The document needs to state very early on which insecticides, by class and type, are of concern in this document based on the insecticides most commonly used under the emergency grasshopper spray program, or for grasshopper control in general, and the proportion of use of each insecticide. While page 35 lists insecticide use by liquid vs. dry, and a discussion of various classes of chemicals runs throughout the early pages, it is not until page 65 that the reader is informed that carbaryl, permethrin, and malathion were the compounds used in the greatest volume in the emergency program. That these are carbamates or organophosphates is not stated even though the document contains a discussion of the impacts of these and other classes of insecticides. Better organization of this information would eliminate the need to go back and reread the opening chapters with the information on page 65 in mind. More complete information about the insecticides most used and their volume or proportion of use is necessary for weighing the impacts and benefits that are discussed.

We understand that qualitative information about insecticide product use is available even though it may not be tabulated more frequently than every five years. This information needs to be in this document. The explanation on pp. 35-36 for its omission is inadequate

AERO--2

Chapter Two, page ten attempts to summarize the advantages and disadvantages of biological, cultural and chemical controls. This summary does not reflect the balance or conclusions found in the alternatives section. The bias toward chemical sprays on this page is puzzling given some of the conclusions drawn later in the document. For example, the singular cultural control example and narrow description of trap strips on page ten would lead one to believe neither trap strips nor cultural controls are practical, though many farmers are satisfactorily using trap strips, trap crops and other cultural controls. Given that a more thorough airing of cultural controls is not expected on this page, this negative and incomplete conclusion should be eliminated.

On the same page, the claim that the fact that cultural controls must be employed prior to the presence of a grasshopper outbreak "decreases their desirability" reflects a high degree of bias against preventive measures, is an unverifiable statement, totally inappropriate, and should be deleted.

The statement, still on page ten, that "insecticide sprays are relatively inexpensive and are very effective when used in a timely manner" does not reflect the fact that what is "inexpensive" and "effective" over the short-term may be neither inexpensive nor effective over the long-term, a fact that is pointed out later in the document. Again, this statement reflects an inappropriate bias and should be deleted here.

Chapter Three, page 31, the section heading "Results of the Emergency Program" is misleading. Instead, a more accurate heading should read something like, "Participation in and Scope of the Emergency Program." "Results" infers efficacy of the program--was grasshopper control achieved, what were the pre- and post-program populations, what was the dollar value of crops saved vs. costs of control?, etc. This section does not address those questions, but does talk about participation, cost to the State, subsidy levels for producers, etc. Actual results of the program have never been gathered, a fact that this section heading obscures.

Stated first in Chapter Three on page 33, but appearing frequently, is the statement that *Mosame lacustrae* is most effective when applied when the majority of grasshoppers are still in the third instar stage or younger. This is true, but it is also true of most chemical insecticides, a fact which is not made clear. This statement regarding *Mosame* is listed as one of its disadvantages, yet the same fact is not applied to nor listed as a disadvantage of chemical sprays. This reflects a bias and should be corrected.

Much too little consideration is given to the use and development of resistant crop varieties as an alternative control measure. Several varieties of wheat and barley, and other cash and forage crops have been observed and documented to be resistant or unpalatable to grasshoppers. (The same is true of range grass varieties.) More widely researched and promoted, resistant crop varieties could be a significant factor in mitigating grasshopper damage in Montana.

The fact that chemical insecticide spraying of grasshoppers seems to have no mitigating effect on grasshopper population outbreaks from year to year (e.g., pp. 15-16, 97) and in fact may even encourage them over the long run (p. 11, Lockwood) is ignored and sometimes contradicted in the document (e.g., p. 98, 102, 125). These contradictions need to be reconciled.

7. Discussions of IPM in the document often refer to a pilot project of the MSUES (its so-called ICPI program), and to a previous MDA program. These are unfortunate examples of IPM and should not be confused with classical IPM which operates on the principles listed on pp. 113 and 133. IPM is a systems approach to a pest and is not merely a collection of chemical and nonchemical tools. The MSUES program consists largely of monitoring, pest identification and spraying of synthetic pesticides--outside of the context of the other IPM principles. Under this program, in fact, pesticide use has increased, not decreased as it would under a true IPM program incorporating the principles described in the IPM and IGM alternatives sections. There is plenty of documentation available about what good, effective IPM is, as well as the opinions of professional entomologists to draw on that would better represent IPM than the examples given in the document. We would suggest working with Dr. Dunkle, chair of MSU's Department of Entomology, to find good examples of real IPM and how it works. See also, An Introduction To Integrated Pest Management by Mary Louise Flint and Robert van den Bosch.

Again, thanks for a commendable effort.

Sincerely,

*Tom Elliott*

Tom Elliott  
President

*Nancy Matheson*

Nancy Matheson  
Agriculture Project Coordinator

Attachment

ATTACHMENT--to AERO's letter of comment on the MDA grasshopper program PEIS, 8/11/89

Specific comments, in order by page

1. Pg. 9: It is not clear whether the USDA's computer expert system for determining the economic threshold of grasshoppers on rangeland will be modified and used for cropland. That it would be superior to the old 8-9 hoppers per square yard seems certain, and could be an important factor in implementing some of the alternatives.
2. Pg. 27, third full paragraph down. The sentence, "This type of program makes sense in Montana. Unfortunately, " is a value judgement, not a statement of fact, and contradicts long-term considerations and other issues raised in the alternatives and impacts sections of this document. Lockwood 1988, cited on pg. 10, refutes this statement altogether. Delete.
3. Pg. 29, third full paragraph down. The term "pest management" to describe the spray program is a misnomer and should be changed to "pest control". This terminology only adds to the confusion about what IPM is and how it is practiced. Spraying alone does not constitute management.
- 4a. Pg. 33: The information on this page represented as "Results" is anecdotal and not valid. Generalizations cannot be drawn from this information and should be deleted.
- 4b. Where these anecdotes were solicited from is not stated and should be.
5. Pg. 60, first paragraph: The second sentence should be deleted. That "synthetic insecticides are currently the most effective and reliable form of grasshopper control during a severe outbreak" is unverifiable for anything but the short-term, and even then it could be argued that resistant crop varieties, for example, are more effective and certainly more cost-effective.
6. Pg. 63, last sentence: Which compounds registered for grasshopper control don't have a short half-life, and to what extent were they used under the emergency program?
7. Pg. 64, last sentence of third paragraph: Name the source for or otherwise document the statement about what the greatest causes of surface water contamination are.
8. Pg. 69: Which compounds don't have a short half-life in water and to what extent were they used under the emergency program?
9. Pg. 72: The explanation for bee losses under a block spraying program is incomplete and unbalanced. First, because these bee kills are still under investigation, assuming blame is probably premature. However, since blame is assigned here, it should be noted that some misapplication of insecticides occurred, that some beekeepers were given inadequate notice to move their hives, and that beekeepers were told incorrectly what the safe re-entry time is.
10. Pg. 77: Cite source for the statement, "Proper handling and application of insecticides greatly reduces the possibility of contaminating wildlife."



# AERO attachment--2

11. Pg. 79. To imply that insecticide labels mean that all mixers, loaders, and applicators always wear protective clothing and apply chemicals properly is unrealistic. Pesticide labels offer protection only insofar as user's read, understand, and follow the specifications.

E 12. Pg. 80, last paragraph. Cite source for the statement that insecticide runoff "becomes so dilute that it poses no immediate threat to aquatic organisms."

E 13. Pg. 94, last paragraph. To be consistent with the stated assumption of increased insecticide use under the emergency program, the paragraph should begin, "With increased insecticide use . . . , deleting "if the program."

E 14. Pg. 95, last paragraph. Delete the unvarnished qualifier, "remote," from the first sentence.

E 15. Pg. 99, last paragraph. Delete the qualifier, "in the short run," from the first sentence. It unnecessarily weakens its meaning.

5 E 16. Pg. 108, first (partial) paragraph. This paragraph states that if producers apply synthetic insecticides following the targeted program, the benefits of the program may be lost. Then it goes on in a speculative vein to declare that growers will likely retreat from the program. This additional speculative language (the last two sentences) adds nothing to the previous statement and should be deleted.

E 17. Pg. 109, middle section. "Insecticides are not a major pollutant of water resources in Montana." To what extent have water resources been tested for insecticides? Does this mean insecticides have never been a problem in Montana water, or does it mean at any given time insecticides will not likely be found in water resources? What is major vs. minor pollution? This statement needs to be clarified based on these questions. We would like to see sources referenced.

E 18. Pg. 113. The fourth item in the list of IPM principles should read, "uses synthetic pesticides only following determination that the pest has reached the economic threshold." Without adding "only," the use of pesticides becomes prescriptive. We suspect the omission of the word "only" is merely an oversight since a similar list under the IPM alternative includes this concept.

19. Pg. 115. The reference to Appendix F should read "Appendix D."

6 E 20. Pg. 115. Appendix G is unfairly characterized as an "idealistic" approach. This approach is, in fact, taken from a highly successful IPM program the East Bay Regional Parks District has implemented on hundreds of thousands of acres of public lands under complex levels of management. Other similar, value-laden qualifiers are so linked throughout this document and have the net effect of casting an exotic and impractical air about the alternatives.

E 21. Pg. 117, middle section. An IPM program is complex and would require careful design and management on the part of state government. But this fact does not warrant the blanket statement that, "An IPM program would create many problems for state government." State government manages to administer successfully many complex programs. This statement about "problems for state government" is followed by what can only be taken as political speculation and posturing which are totally out of place in a document designed to present an impact

# AERO attachment--3

analysis. It is true that "The MDA [or the Cooperative Extension Service] would have to increase its staff to accommodate such a program." (It should also be noted that as described in Appendix G, producers ultimately would take over the program from the state which should have a fair amount of political appeal.) The rest of the language under "General Public" is totally inappropriate and is symptomatic of sentiments about the political and economic climate that are scattered through the alternatives section of the document.

E 22. Pg. 118, first full paragraph. The assumption that fields managed under IPM are weedier than conventional fields is an over-generalization. One can see very "clean" fields managed without any chemicals, and we've all seen weedy conventional fields. The main point to be made here, though, is that the aesthetic values of producers are changing rapidly to include a tolerance for some weeds. This whole paragraph overstates the role that appearance plays, and understates the effectiveness of good IPM.

E 23. Pg. 119, last full paragraph. That producers did not reduce their insecticide use under the MDA's "IPM" program is not due to a weakness of IPM but to an MDA program that was IPM in name only. See our statement in the cover letter under point 7. The MDA program was a scouting program and did not otherwise incorporate the principles of IPM listed in this document and in IPM literature. The last two sentences in this paragraph should be deleted, as the example is inappropriate.

E 24. Pgs. 145-146: In the chart, the "Y" symbol is visually too similar to the "X"s to be readily picked out. How about using "O"?

E 25. Appendices B and C. The formula for distribution of state funds was changed after 1985 to address concerns of equity from county to county. It was only beginning in 1985 that a county's share was prorated based on the qualified acres in that county. This change is not mentioned in the text of the document, nor reflected in the appendixes.

E 26. Pg. 181, item IV. The IPM research would be carried out under the auspices of the MDA, but would be conducted as in IV B, by public and private entities including MSU.

\*\*\*



STATE OF MONTANA  
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Tom Ray  
Evelyn E. Shaw

August 9, 1989

Gary Ginery  
Environmental Management Division  
Montana Department of Agriculture  
Capitol Station  
Helena, MT 59620

Dear Gary:

I have reviewed the Montana Department of Agriculture's (MDA) Draft Programmatic EIS (PEIS) on Emergency Grasshopper Control and have the following comments to offer. I would like to commend the department for the emphasis given to orogram alternatives. The document provides important information for policymakers and gives the public the opportunity to compare options and provide input on the most desirable role for state government in assisting agricultural producers with pest management.

The information in the PEIS appears to make a fairly strong case against continued use of state emergency funds for grasshopper spraying based on considerations of equity among producers, effective use of limited funds, effectiveness of grasshopper spraying over the long term, and availability of alternatives that are more proactive and that may have fewer adverse associated environmental impacts. If an alternative allocation of state funds for pest management is eventually proposed, the discussion in the PEIS makes an important contribution to state policy development in this area.

It is evident that there is very little data available for Montana that document either the relative effectiveness of grasshopper control measures or the specific occurrence of environmental impacts as a result of pesticide usage. The draft PEIS does a reasonable job of discussing the major categories of possible impacts related to pesticide use that have been reported in scientific literature or investigated in Montana in response to complaints. However, the lack of monitoring to address data deficiencies and to gain a better understanding of how pesticides work in the environment is a significant problem identified by the PEIS.

Page 2  
August 8, 1989

Scoping materials developed by the MDA in 1988 for the PEIS indicated there would be a chapter on mitigation measures for reducing the need for emergency declarations and minimizing adverse impacts. Why was this chapter not included in the draft PEIS? Regardless of which pest management program alternatives are ultimately preferred by the MDA, it would be valuable for the PEIS to summarize in an appendix or at least reference available information concerning valid cultural practices, methods of pesticide handling and application, and other actions considered likely to mitigate adverse environmental impacts.

My specific comments and questions concerning individual chapters or pages of the PEIS are attached. Thank you for the opportunity to comment.

Sincerely,

*Gail Nuntz*  
Gail Nuntz  
Resource Specialist

#### Specific Comments

#### Chapter 3

7 1. Page 26: The PEIS indicates that the State of Montana has never cost-shared in the APHIS rangeland block treatment program. It is unclear whether this is solely because of basic disagreement with the way APHIS has structured the program or for other reasons. Clarification would be desirable.

E 2. Page 31: It would be useful to provide more specific discussion concerning the content and focus of integrated pest management programs the Montana State University Extension Service and the MDA have been involved in. Similarly, the MSUES small grains pest management program and circumstances limiting its scope should be discussed in more detail, especially for purposes of comparison with some of the options discussed in Chapter 6.

8 3. Page 31: The following statement does not allow a reader to understand past decisions to abandon the MDA's IPM programs or the tradeoffs and other considerations involved in reaching these decisions: "...the MDA was forced to abandon it's (sic) IPM programs because of lack of funding and limited staff." Clarification would be desirable.

9 4. Pages 32 through 34 and Appendix B: It would be useful to add an example of how the formula worked for calculating the state's share of grasshopper costs among the participating counties in any of the three years that the emergency program was in effect. While the outcome appears dependent on a number of variables (e.g., # of acres treated, # of counties involved, total \$ collected by a county, total amount of state funds available, etc.), were any of these factors more influential than the others?

#### Chapter 4

E 5. Pages 55, 56, and 57: While the terms "threatened species" and "endangered species" of wildlife are defined in the glossary, two additional terms ("rare" and "sensitive") are also used. It would be helpful to define the latter two terms and to indicate which of the listed wildlife species are in each category.

6. Page 57: Is there any population density data available that is more recent than 1975?

#### Chapter 5

7. Considering the sensitivity of some fish species and aquatic organisms to pesticide exposure, the aquatic impact data in Chapter 5 could be more effectively presented if organized in a subsection separate from water quality impacts.

10 8. Of the various studies and scientific literature referenced in the impact analysis, is it possible to determine what portion of

the reported impacts were due to label violations and which impacts occurred even though label requirements were followed?

9. Page 61: What is the source of the information indicating that carbofuran, parathion, and malathion were the compounds used in greatest volume in the emergency grasshopper control program? A similar sentence on page 105 does not mention malathion. What were the approximate volumes of each of these three compounds used in the program? Because of the different properties of these insecticides reported in Appendix D, it would be useful to have some indication of the comparative volumes used even if only rough estimates of orders of magnitude can be made (e.g., twice as much of one insecticide used as compared to the other two insecticides).

10. Page 64: The draft PEIS notes that the concentrations of insecticides applied to foliage for grasshopper control are "low". Is this statement based on label requirements? Could numerical data be included to more clearly indicate what is meant by "low"? This information would be useful for purposes of comparison with data presented elsewhere in the chapter concerning concentration levels reported in the scientific literature that have been associated with documented environmental impacts. Also, it would be useful to include in an appendix an example or examples of a pesticide label in order to show the type of information and level of detail specified for pesticide handling, application, and disposal.

11. Page 66: Does the MDA agree with EPA's suggestion that most pesticide residues in groundwater are due to non-point source contamination?

#### Chapter 6

12. A formatting option that would make this chapter easier to read and that would enhance comparison among the alternatives would be an annotated table with the list of alternatives on one axis and the evaluation criteria on the other axis. The descriptions of what each alternative entails and the more important or unique points raised under the evaluation criteria for each alternative could remain in the narrative text. This approach would allow those portions of the evaluation that are virtually identical for two or more alternatives to be cross-referenced in the table and thereby eliminate some repetition.

13. There are numerous statements and assumptions expressed in Chapter 6 that appear paradoxical based on a comparison of the alternatives and that sometimes occur within the evaluation of a single alternative. While some level of speculation is unavoidable in this type of analysis, the MDA's actual technical conclusions or professional judgment on the most likely answers to a number of key questions is obscured. Some examples include: a) whether insecticides do or do not notably influence grasshopper populations beyond the immediate "knockdown" effect; b) whether the current rate of insecticide use is responsible for adverse environmental impact; c) whether use of insecticides is



most likely to increase, decrease, or remain about the same in the future and the relative influence of state funds or other actions on those trends; and d) whether costs of spraying are or are not a significant component of overall crop production costs. As noted above, different assumptions on these topics are sometimes postulated in order to address all possible effects of the various alternatives. As noted in comment #13, inclusion of a table might help clarify the assumptions used in the analysis of alternatives.

13

14. In several instances references are made to efforts being made in other states to implement long term insect control strategies via integrated pest management and sustainable agriculture techniques. It would be useful to briefly summarize some of these programs and the level of funding involved in order to provide another basis for evaluating the potential viability of the various non-emergency alternatives presented in the chapter (see pp. 111, 114, and 120).

E

15. Page 96: The paragraph concerning producer income notes that producers experiencing severe grasshopper or other insect infestations in counties not participating in the emergency program could not receive state assistance. Was consideration given to providing an option for a producer in this situation to pay two-thirds of the spray cost in order to receive state assistance?

14

16. Page 102: Alternative B3, "Targeting State Assistance" is presented as an emergency alternative, but its chief value appears to be as a demonstration program which, if favored in concept by the MOA and persons commenting on the PEIS, would be more logical to pursue in a context other than an emergency.

15

## Montana Department

of

## Fish, Wildlife & Parks

1420 East Sixth Avenue  
Helena, MT 59620  
July 26, 1989

E.M. Shortland, Director  
Montana Department of Agriculture  
Agriculture/Livestock Building  
Capitol Station  
Helena, MT 59620

Dear Mr. Shortland:

Thank you for the opportunity to review and comment on the draft programmatic environmental impact statement on Montana's Emergency Grasshopper Control Program. It is a comprehensive and educational document. The final draft should be a valuable reference for the future. We are providing general and specific comments for your review to assist in refining the draft.

On a general comment we believe proper management of Montana's precious fish and wildlife requires identification of grasshoppers as largely beneficial to those resources. They are an important food item for adult game and many nongame birds, exotic as well as native species. They are a critical source of protein for juvenile birds, especially during their first 2 months of life. Programs designed to control grasshopper numbers can seriously reduce availability of that food source. They can also contaminate the insects available to the birds with toxins that will threaten bird life generally.

In the draft EIS, we are encouraged to find that two major points are discussed: the need for long term solutions to rangeland management problems, and the potential for integrated pest management programs. We support the joint approach in addressing the concerns.

Although we are encouraged that the insecticide approach to addressing grasshopper outbreaks focuses on less toxic compounds like sevin and carbaryl, other highly toxic compounds are still used in Montana. Not only are most of these as toxic to wildlife as endrin, they lack the residual killing power of endrin and may be applied repeatedly even summer to Montana's rangeland habitats. Any control program that incorporates these highly toxic chemicals remains a major concern to us.



Discussions of economic values of crops, livestock forage, logging, mining and recreational pursuits, like hunting and fishing, must be approached cautiously. Traditionally important contributions to Montana's economy (agricultural products, timber, and minerals) have suffered severe setbacks during the 1980's. The nation is looking for more areas in which to recreate, and Montana has become one of its focal points. The economic values of fishing, hunting, and often just viewing wildlife or scenery are just beginning to be understood in Montana. Certainly agricultural producers who are charging fees for fishing and hunting are aware of the economic benefits of those natural resources.

The economic values of fishing and hunting for deer, antelope and elk have been determined recently for Montana. In the draft you chose to utilize a U.S. Fish and Wildlife Service estimate to imply economic losses as values with respect to Montana wildlife. (page 73). Copies of the Montana bioeconomic studies are being forwarded to you. These studies are more comprehensive and we suggest should be utilized in the economic assessment.

With respect to the Alternatives Rejected (pages 89-92), we agree with you on A2, and would defer to your expertise on A1 and A4. Alternative A3 would have merit, however, if private enterprise could produce sufficient stocks of grasshopper predatory insects or parasites under "insect farming" conditions. While the economics of such an endeavor might seem erratic, your documentation of grasshopper damage to 20% of Montana's rangelands annually might warrant further investigation of this approach.

Of the Emergency Alternatives discussed, we believe B3 has the most merit, while B2 is second. To be fully acceptable, B3 should be modified to exclude some additional insecticides from use, and participating producers would have to relinquish use of those and perhaps other grasshopper insecticides for that year.

Of the Non-Emergency Alternatives, C2 and C5 have the most merit. They address long term solutions to overall rangeland management problems, i.e. undesirable plants and insects. Developing effective rangeland management procedures requires the guidance of research and objective evaluation. Some provisions of C3, like demonstration areas, could be incorporated into C2 or C5. Our department is ready to assist in formulating a final IPM program, and to cooperate in those research and assessment projects with obvious fish and wildlife impacts.

Alternative C4 (Roadside Grasshopper Control) is not a desirable option from the Department viewpoint. Wildlife research, that addresses game and nongame birds, has repeatedly revealed the extreme importance of roadside

vegetation. For some species, like Hungarian partridge that depend on agriculturally idle areas during spring and summer, roadsides can contain critical habitat. The fact that only 138,000 acres of roadsides exist in Montana (page 125) reaffirms the critical habitat designation.

We also recognize the potential impact to agriculture and thus agree that a planned approach to dealing with grasshopper control is essential.

In closing, the Emergency Grasshopper Control Program DEIS is a significant step forward in defining problems and outlining solutions. We appreciate the opportunity to provide constructive comments on this comprehensive document.

Sincerely yours,

*Glen Erickson*  
Glen Erickson, Acting Admin.  
Wildlife Division

726.2a

Specific Comments on the  
Emergency Grasshopper Control Program DEIS  
Montana Department of Fish, Wildlife and Parks  
July 27, 1989

Chapter One

Although the document focuses on grasshoppers, and specifically on controlling eight species (plus Mormon crickets) that are viewed as detrimental to agricultural crops and range production, no information is provided on their food habits. That information is valuable because big game animals, like mule deer, whitetailed deer and antelope feed very little on grasses, and then only in spring. A majority of their diets is comprised of forbs in summer and selected shrubs the remainder of the year. Statements that grasshoppers are destructive of wildlife habitats (page 1), that information contained in the document is based on research evidence (page 3), antelope and deer not benefiting from grasshopper outbreaks (page 76) and effects of grasshoppers on wildlife not having been documented (page 99) are contradictory and tend to confuse the reader.

Chapter Two: Good overview of grasshopper biology.

3. Page 4, Par. 1. Grasshoppers have caused direct and indirect impacts on Montana's ecosystem. True, but doubtful of any permanent adverse impacts, or the grasshoppers or vegetation would have ceased to exist long ago.

4. Page 6, Par. 1 Matching of first instars, mid-May through early June, coincides with early hatching (and largest broods) of many upland game bird species.

5. Page 9, Par. 1. Acknowledges benefits of avian and mammalian predators on grasshoppers.

6. Page 9, Par. 2. Explosive, high grasshopper densities may destroy range and field crops, but these are only short term impacts, and range vegetation recovery begins immediately. What are opportunities for regrowth during remainder of that summer? See No.1 above.

Chapter Four

7. Pages 52-57. The four environmental regions contain inconsistencies in descriptions of indigenous wildlife, by category, resident vs. migratory, threatened and endangered species. Are there really bears in the Two Rivers Region?

Some attempt is made to identify wildlife areas, wilderness areas, parks, etc. However, those areas are not synonymous in wildlife value. Generally the richest and most productive

productive areas for agricultural crops have the same attributes for wildlife productivity. If those areas do not have high wildlife populations it is because wildlife habitats have been replaced with intensive agricultural uses that preclude wildlife existence.

Chapter Five

8. Page 75, Par. 2. Mallard ducks and pheasants are also extremely sensitive to diazinon and disulfoton. Also, it matters little to the wildlife victim if an insecticide was used properly or misused; if the lethal application is available to wildlife, it has high potential to kill.

9. Page 77, Par. 1. Same comments as last part of No. 8.

10. Page 78, Par. 1. Is there a reference(s) to support sixth sentence.

11. Page 78, Par. 3. Appendix E is actually D.

12. Page 80, Par. 1. (Cumulative Effects). Good, fundamental recognition.

Chapter Six

13. Page 88, Par. 1. Is the 21-23% "destruction" of range forage annually a natural phenomenon? I.e. something needed to sustain basic, low-medium or core populations? It is destruction perhaps only in the context of competition for forage for domestic livestock. Those same population levels may be barely adequate to sustain insect-feeding wildlife populations.

14. Page 93, Top par. Appendix C is actually A.

15. (Same). The maximum 721,000 acres that might have been sprayed for grasshopper control is 4-5 times that sprayed with endrin for cutworm control in 1981. A large number of people objected to the magnitude of that 1981 program, and endrin is no longer registered for use in Montana. That progression of events suggests strongly that the current Emergency Grasshopper Control Program and insecticides available for grasshopper control may be unacceptable by the public in Montana if used on an annual basis.

16. Page 93, Par. 3. last sentence. There is a major problem inherent with agricultural "pest emergencies": too much attention is focused on controlling the pest, and little or none is given to evaluating effects of the efforts. I.e. fish kills will not be reported if they are not looked for, and they will not be looked for or reported



21

by landowners concerned about saving their cash crop, nor will they be looked for by state workers with other job assignments. Emergency grasshopper control procedures need to be monitored at least as closely in the field as routine control programs. All control programs require some field monitoring.

17. Page 95, bottom par. last sentence. Speculative; could be equally valid that the difference is unnoticed by the public.

18. Page 99, bottom Par. States the opposite of No. 1.

22

19. Page 103, Par. 1, c) and appendix tables: D-3 criteria acceptable for hazard indicators, but D-4 does not accurately reflect Acute oral toxicities from Tables 7, 8 and 9.

20. Page 115, Par. 2. Appendix F is actually G.

21. Page 124, Par. 3. The influence of traditional sources of income to Montana's economy is changing. Numbers of farms and ranches now is about half of those in the 1920s. Meanwhile national affluence is linking for more sources of outdoor recreation; Montana is being increasingly identified as one of those providers. Although agriculture will continue to be a significant source of income in the future, increasing numbers of producers are being attracted to additional income provided by fee fishing and hunting. Management of land for grain and livestock differs greatly from that for fish and wildlife and optimizing income from total land management will require adjustments in philosophy and practices.

23

22. Page 131, Par. 2. It is difficult to envision significant changes in producer income resulting from grasshopper control treatment of 158,000 acres of roadsides.

24

23. Recommendation for further restriction of use of grasshopper insecticides. Information from the DEIS and some of our references indicates the following insecticides are highly or extremely toxic to Montana's fish resources:

Azinophos methyl (E)*	Methiocarb (E)
Carbaryl (H)	Methyl Parathion (H)
Carbofuran (E)	Naled (E/H)
Chlorpyrifos (E)	Parathion (H)
Dimethoate (H)	Phorate (E)
Fenvalerate (E)	

\*E = extremely toxic ( $\leq 1.0$  ppm), H = highly toxic (1.0-10.0 ppm).

Those with similar acute oral toxicities to terrestrial

wildlife are:

Carbofuran (E/H)	Mevinphos (H)
Diazinon (H)	Parathion (E/H)
Disulfoton (H)	Phorate (E/H)
Methyl Parathion (H)	

Based on these evaluations, we recommend that the following additional restrictions be applied in order to protect the state's fish and wildlife resources:

1. Cancel current registrations for grasshopper control (the registration for use of endrin cancelled by MDA, and its acute oral toxicity was similar for these resources):

Carbofuran,	Diazinon,	Disulfoton,	Methyl
Parathion,	Mevinphos,	Parathion and	Phorate.

2. Restrict application to distances  $\geq 1/2$  mile from any water body inhabited by fish or waterfowl:

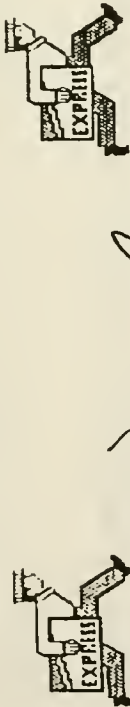
Azinophos methyl,	Chlorpyrifos,	Fenvalerate,
Methiocarb, Naled		

Restrict application to distances  $> 1/4$  mile from any water body inhabited by fish or by waterfowl:

Carbaryl, Dimethoate.
-----------------------

- End of Comments -

726.1a



TO: *Dept. of Ag.*

ATTN: *E.M. Snortland*

\*\*\*\*\*

FROM MONTANA DES  
DIVISION

NAME: *F. Guy Youngblood*

DATE: *8-16-89*

1-HEADER ---PAGE(8)



STAN STEPHENE  
GOVERNOR

STATE OF MONTANA  
DEPARTMENT OF AGRICULTURE  
OFFICE OF THE DIRECTOR  
AGRICULTURE/LIVESTOCK BLDG  
CAPITOL STATION  
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404-444-8144

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EVERETT J. SNORTLAND  
DIRECTOR

June 30, 1989

Dear Reviewer:

In 1988 the Montana Department of Agriculture initiated a draft programmatic environmental impact statement (DEIS) on the state grasshopper emergency programs of 1985, 1986, and 1987. This document is enclosed for your review. Your comments and suggestions are encouraged.

Written comments should be submitted to the following address: DEIS, Montana Department of Agriculture, Environmental Management Division, Capitol Station, Helena, MT 59620-0205. For your comments to be considered in the final EIS they must be received no later than August 14, 1989. Questions or inquiries for further clarification of the alternatives may be directed to the department's Technical Services Bureau at 444-2944.

Thank you for your time and assistance in determining the future of grasshopper management programs in Montana.

Sincerely,

*E.M. Snortland*

E.M. Snortland  
Director

Enclosure

After review of enclosed DEIS, this agency finds no exceptions  
warranting comments or suggestions.

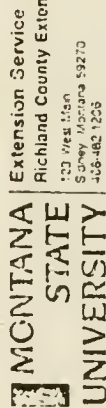
Sincerely,

*F. Guy Youngblood*

F. Guy Youngblood

AGRICULTURE/LIVESTOCK BLDG, CAPITOL STATION, HELENA, MT 59601-0001

*Aug 14*



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Clayton, Montana 59230  
406-228-8221 Ext. 41

DEIS

Montana Dept. of Agriculture  
Environmental Management Division  
Capital Station  
Helena, Mt. 59620-0205

Dear Writer,

After reviewing the Draft Programmatic EIS, it is apparent that it makes little difference if we do have or do not have an Emergency Grasshopper Control Program. The environmental and social economic impacts are small.

The present emergency program gives a small amount of money to a few producers after the grasshoppers have done their damage.

The state as a whole would be better off putting the same amount of money into a non-emergency alternative, such as the IPY Development Program.

Don't eliminate one program unless it is replaced with a better program.

Sincerely,

*Carl Force*  
Red Laver  
Richland County Agent

RFL/cc

August 8, 1989

July 21, 1989

Mr. Snortland  
DEIS  
Montana Department of Agriculture  
Environmental Management Division  
Capitol Station  
Helena, Montana 59620-0205

Dear Mr. Snortland:

Thank you for the copy of the EIS on the emergency grasshopper control program. The following are some of my thoughts and suggestions for the grasshopper control program in Montana.

On page 196, I do believe that Bob Gillespie worked for MDA and Gary Jensen worked for MSU in 1986. I would like to give both of these gentlemen special recognition for their help during the grasshopper crisis in Valley County.

On page 31, Valley County decided that it would be easier to have a producer spray both sides of the roadway for \$12.00 per mile. The county did not have the money in their budget to initiate the 2 mill emergency levy. I would suggest that the requirement for the 2 mill levy be abolished due to the fact that a mill in one county does not equal a mill in another county. Therefore, I recommend that a county would need \$10,000 - \$12,000 in a reserve fund, then the state and federal would kick in their money.

Under an emergency situation, there needs to be a plan where each agency has a certain job and everyone works together as a team for the best interest of the producer. As it goes now APHIS does their own thing, MDA and MSUES does theirs. Example - it creates a night mare when a representative from APHIS walks into the Extension Office on Friday afternoon and lets you know that if ranchers in X area want their land sprayed, they have to have the money collected and in escrow account on Monday morning. Most everyone knows that cash flow is not an easy thing that is changed overnight, let alone have a group of them make the same decision in that short of a time period. I would also like a report of when they are spraying BLM land.

Producers that lease state land should have an automatic amount that is kicked in by the state to the producer to control hoppers on state land.

On page 125 under alternative C4 Roadside Grasshopper Control. Producers are correct when they say that a major source of grasshopper problems initiate on state owned road right-of-ways. The State of Montana should pay 100% of the control measure on these right-of-ways. The state

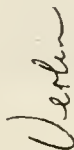
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Page - 2 -  
Mr. Snortland

could pay private applicators \$25 - \$30 per mile to spray or hire an aerial applicator. Please refer to the enclosed letter written to Governor Schweinden concerning grasshopper damage by right-of-way hoppers.

I hope that these ideas provide some productive input. If you have any questions, please give me a call.

Sincerely,



Verlin Koenig  
Valley County Extension Agent  
VK/kik  
encl.

**MONTANA**  
**STATE**  
**UNIVERSITY**

Extension Service  
Valley County Extension Office  
Courthouse Square  
PO Box 991  
Glasgow, Montana 59230  
406-228-6271 Ext. 41

June 22, 1988

Governor Ted Schweinden  
State of Montana  
Office of the Governor  
Helena MT 59601

Dear Governor Schweinden,

I would like to address the issue of grasshopper control along state owned roads. Due to the fact that 7 of the last 8 years have been bad grasshopper years in the northeast corner of Montana, people are constantly asking me why the State of Montana does not control hopper infestations along the road right-of-ways.

In these tough years farmers must make careful decisions to pay their bills. If they have eight or more hoppers per sq. yard in their fields they are advised to spray to protect their crops. When the roadways are not sprayed at this time it puts them in a catch 22.

The following are several reasons why the State of Montana should control hoppers along the right of ways when there are 10 hoppers per square yard. First, the forage saved could help feed livestock. Second, an infestation of nine hoppers per sq. yard will eat as much forage as a cow. Third the only thing separating the hoppers from the farmers grain is a wire fence. If one female hopper can lay 400 eggs during one season, then the impact on the farmers field magnifies. Fourth, females will generally look for green material in the right-of-way to lay their eggs, then move out and invade the surrounding area when the grass dries up. (When you figure 1 yd. X 75 ft. of right-of-way X 10 hoppers/yard it equals 750 hoppers). When these figures are multiplied by only 1 mile on one side of the roadway the figures look like this. 5280 divided by 3 = 1760 yds. X 750 hoppers/yard = 1,300,000 divided by 10 (hoppers=grazing cow) = 132,000 cows trespassing on the landowners fields.

Many people are concerned about the waste of taxpayers dollars spent to provide Jensen Spray Service to spray Dust and Banvel along the highways. They

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JUL 5 1989

feel that this contract should be stopped immediately due to the drought and hard economic times. This money should be put into controlling hoppers.

I could go on and on about comments that I get from farmers about this problem, but I think you get the picture. If you are interested in setting up a committee for input to this situation I would be glad to select several landowners or be involved myself. If you have any questions, give me a call.

Sincerely,

*Ventura*

Vernon Kosniq  
Valley County  
Extension Agent

cc: Gary Wicks

cc: Ted Schye

VK/djd



STAN STEPHENS  
GOVERNOR

STATE OF MONTANA  
DEPARTMENT OF AGRICULTURE

OFFICE OF THE DIRECTOR  
AGRICULTURE/LIVESTOCK BLDG.  
CAPITOL STATION  
MONTANA

TELEPHONE  
255-3331

FAX 255-3334

EVERETT M. SNORTLAND  
DIRECTOR

June 30, 1989

MEMORANDUM

TO: Recipients of the Emergency Grasshopper DEIS Summary

FR: E.M. Snortland, Director *EMA*

RE: Review of the Summary

In 1988 the Montana Department of Agriculture initiated a draft programmatic environmental impact statement (DEIS) on the state grasshopper emergency programs of 1985, 1986, and 1987. The department has sent you a summary of the DEIS for your review. If you wish to receive a complete document please contact the Environmental Management Division at the above address or call Tom DeLuca at 444-2944. Comments on the DEIS must be received by August 14, 1989.

Thank you for your time in reviewing this summary.

Enclosure

*Tom: It looks good to me*  
*DeLuca's Report*  
*Ext Econ*  
*MS4*





United States  
Department of  
Agriculture  
July 18, 1989

Agricultural  
Research  
Service

Northern Plains Area

Rangeland Insect Laboratory  
Montana State University  
Bozeman, Montana 59717-0001

United States  
Department of  
Agriculture  
Soil  
Conservation  
Service  
Federal Building, Room 443  
10 East Babcock Street  
Bozeman, Montana 59715

Mr. E. M. Shortland  
State of Montana  
Department of Agriculture  
Agriculture/Livestock Bldg.  
Capitol Station  
Helena, MT 59620-0201

July 10, 1989

Dear Sir:

I have reviewed your draft PEIS as requested, and am returning the edited copy to you. I notice on many pages (i.e., 14, 22, 23) the need for a space between words at the right end of the first line of a paragraph. The most serious problems are summarized below. The numeral at the left of following columns has been marked on the draft to facilitate corrections:

Comment Page

Suggestion or Correction

- |             |    |   |
|-------------|----|---|
| <b>E</b> 1  | 8  | Humidity would not affect <i>Nosema</i> .   |
| 2           | 10 | The sentence has no verb.   |
| <b>E</b> 3  | 10 | Insecticides do not have "hosts". You mean "target species".  |
| 4           | 12 | "Appearance" is preferred to "emergence".   |
| 5           | 17 | The author is "Antonelli".  |
| 6           | 27 | Do not assume that all producers are "he"s.   |
| 7           | 28 | "Problem pest" is redundant.  |
| 8           | 29 | Omit hyphen.  |
| 9           | 34 | Omit comma.   |
| 10          | 48 | Omit reference to Fig. 4.   |
| 11          | 74 | Correct spelling and add a period   |
| <b>E</b> 12 | 91 | <i>Nosema</i> does not lose efficacy as grasshoppers grow. It takes a higher dose, had less time to work, and bait is less palatable if applied to older instars. |

Sincerely,

*Jerome A. Onsager*

JEROME A. ONSAGER  
RESEARCH LEADER

The Agricultural Research Service  
is an agency of the  
United States Department of Agriculture



Mr. E. M. Shortland  
Montana Department of Agriculture  
Agriculture/Livestock Bldg.  
Capitol Station  
Helena, Montana 59620  
Re: Draft Programmatic EIS for State  
Grasshopper Emergency Programs

Dear Mr. Shortland:

We have reviewed the above draft EIS and have no comments to offer.  
Sincerely,

*Richard J. Gooby*

RICHARD J. GOOBY  
State Conservationist

cc:  
Ron Batchelor, Biologist, Bozeman



## WIFE Women Involved in Farm Economics

August 11, 1989

Everett Snodgrass-Director  
Department of Agriculture  
Capitol Station  
Helena, Montana 59620-0201

Dear Everett:

Plan # 5 page 135 of the Draft Environmental Impact Statement for Montana is within the guidelines of WJL.

Of major concern to many Montanans are air and water quality concerns. WJL shares those concerns.

WJL feels the program of integrated pest management which features field scouting and the use of Biological Control (nosema locustae) would benefit Montana the most.

With field monitoring the grasshopper population should never reach the economic levels which would indicate the use of insecticides. The use of insecticides would have to decline. With a decline in insecticide use we should see an increase in the natural predators of grasshoppers, or those insects which share a synergy with them, placing them in further decline.

Alternative C-5 should reduce the economic impact on honey bee and alfalfa bee producers.

If cost savings on insecticides can be achieved, then cost savings on biological control can also be achieved.

May we suggest that producers of honey bees, alfalfa bees, and an organic farmer be included on the project meeting advisory panel.

Sincerely,  
John J. Snodgrass  
John Snodgrass-President  
Montana W.J.L.

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### III

#### **ADDENDUM**

##### **B. Responses to Individual Comments**

Note: The number preceding the response refers to a comment which is presented in Part III. A.. To understand the responses the reader is encouraged to read the corresponding comment prior to reading the response.

1. Information on individual product sales and use is confidential and can only be released on an individual basis with written consent from the director (80-8-107, MCA). General pesticide use information is now compiled once every 5 years. This is an extremely costly and time consuming process which produces values for pesticide sales by chemical family. The limited information gained from this general data did not warrant inclusion in this document. This information is available to the public through the MDA.

2. The document adequately addressed the use and development of resistant crop varieties. The document cites three refereed journal articles on page 121 of the DPEIS, and refers to the development of resistant varieties on page 134. There has been very little work performed on the use of small grain cultivars that are resistant or tolerant to damage caused by grasshoppers. Following an indepth literature search the department was able to identify only these 3 refereed journal articles that addressed this issue with regard to small grains. Please see Olfert et al. 1988 (Page 142 of the DPEIS).

3. The examples noted by the commenter are not contradictory. The document frequently refers to short term yield savings achieved by chemical control of grasshoppers, this is discussed as a possible short term benefit. Insecticides will give effective short term reduction in grasshopper populations and thus may save yields for that year. These statements do not address long term grasshopper control or effect on cost efficacy of insecticide treatment.

4. The department agrees that there are numerous successful IPM programs that have been employed across the nation and has reviewed many different programs, both successful and unsuccessful. It was not our intention to give a literature review of IPM programs. We have listed the Extension Service's ICPM program and our potato and alfalfa seed programs for several reasons:

- a) These are the only large scale IPM programs that have been performed in Montana.
- b) To evidence our experience with implementing an IPM program in Montana.
- c) To point out possible pit falls and inadequacies of such a program in Montana.



If an IPM program was to be funded by the state, it was indicated that the program would be developed by experts from the university system and from the private sector. They would review successful IPM programs for applicability to the state program.

5. This is a valid assumption based on past observations by the department. Most producers that took part in the program did indeed treat their fields more than once for grasshoppers during the growing season. Retreatment of fields with insecticides that were not allowed to be used in the program would defeat many benefits gained by using the program prescribed control measures. The statement: "...growers will retreat regardless of initial application" refers to retreating the fields with insecticides, not retreating from the program.

6. The department did not intend reduce the validity of this outline by suggesting that it was an idealistic approach, we meant only to imply that the outline is an ideal approach that could possibly be used as the backbone of a state IPM program. The East Bay Regional Parks District IPM program appears to be an excellent program; however, it was developed primarily for non-cropland to be managed by a central group. A state IPM program that is implemented for a number of different crops grown on 16.5 million acres of land and managed by up to 20,000 individual producers is somewhat different than that from which the outline was originally developed. Thus at this point we feel that the outline is idealistic, yet serves the purpose of describing a good approach to a large scale IPM program.

7. The Montana legislature has never appropriated or authorized expenditure of funds for this purpose. Appropriation requests to allow for state participation in federal grasshopper control programs have been introduced several times since 1975, but each time they have not been funded.

8. In the spring of 1986 the departments within state government were required to show a 5% budget reduction by fiscal year end (June 30). The Environmental Management Division's share of the savings request was approximately \$30,000. The decision was made to maintain statutorily mandated programs within the department. Since the IPM program was not mandated by statute, this program was eliminated to meet the 5% budget cut. Six temporary biological aides (1.51 Full Time Equivalents) plus operating expenses amounted to \$26,820 per year. Since then, zero

base budgeting and declining state general fund appropriations to the department have resulted in an additional loss of revenue.

9. This formula is given in the program rules presented in Appendix C-2.

10. Of the papers cited in the impact analysis section, several authors used label rates of insecticides and others did not. Most of the papers discussed were not based on grasshopper control and the rates of insecticide used to control grasshoppers. The enforcement cases that are given as examples of impacts were, in most cases, due to improper handling of pesticides or due to pesticide spills.

11. The reference to "low" concentrations of insecticides applied to control grasshoppers was made as a comparison of soil applied systemic insecticides to foliar applied insecticides. For example; Furadan Flowable is applied to small grain foliage at a rate of 1.8 to 3.5 ounces of active ingredient per acre, whereas Furadan granular formulations are applied to the soil in field corn at a rate of 36 ounces of active ingredient per acre. Granular phorate and disulfoton are applied to soil in small grains at a rate of 16 ounces of active ingredient per acre. To the department's knowledge no granular insecticides were applied in the state grasshopper emergency program.

Pesticide labels for every pesticide registered in Montana are on file with the MDA and are available for any individual to review or photocopy during normal work hours.

12. Based on pesticide use in Montana and on groundwater monitoring and enforcement cases, the MDA believes that most documented pesticide contamination of groundwater in Montana is point source.

13. An attempt was made to address each alternative individually and without bias. This may have lead to seemingly inconsistent statements from one alternative to the next. We feel that the majority of confusion comes from the comparison of short term verses long term impacts. Insecticides give immediate knock down of grasshoppers and thus may save a single crop. Such short term benefits of insecticides may have been confused with long term benefits of reduced insecticide use.

The use of a table to clarify the benefits and costs of the different alternatives is an excellent idea; however, we feel that such a table might limit the flexibility that is required for discussion of individual impacts

within the sub-categories of the alternatives section of the DPEIS. There are too many variables and too little data available to make definitive, binary responses to potential impacts of the emergency program or its alternatives.

14. This is covered in depth in Chapter 3 of the DPEIS.

15. This is not a demonstration program, but rather an alternative that requires use of grasshopper control methods which would have less impact on the environment than the current program. If control under this alternative is relatively successful, then it has accomplished no less, and perhaps more, than the current program. This may influence other producers to use these same methods which would be seen as a secondary benefit of this alternative.

This alternative could not be implemented as a non-emergency program as the state emergency funds are identified as the funding source for this alternative. Such funding is available only when an emergency is declared by the Governor.

16. The department purposely avoided the use of specific cost benefit analysis as there was too little economic or environmental impact data available to do it justice. The USFWS value given on page 73 of the draft was not an estimate of the economic value of wildlife in Montana, but rather a graphic display of the general effect of agricultural practices on wildlife. We appreciate the suggestion to use the Montana bioeconomic studies as an economic assessment of wildlife; however, since we are not able to assess the impact of the emergency program on wildlife, the economic value of wildlife can not be effectively used.

17. This document was designed to specifically address cropland and thus there is no discussion of grasshopper preference of range vegetation. We have purposely avoided this large and complex subject as it is really out of the scope of this document. A literature review by Colorado State University Experiment Station addresses the subject of feeding habits of pest species of grasshoppers on rangeland, this may be obtained from the University (Bul #5845). The statement with regard to the damage to wildlife habitat was removed from the text, though some of the Melonoplus spp. discussed in the draft have been documented as consumers of various forbs.

18. Crop regrowth depends on a number of variables including the type of crop, the time of year that crop damage takes place, and the severity of the damage. A discussion of the types of crop damage inflicted



by grasshoppers is given in Chapter 2. Though there would be an opportunity for crop regrowth in forage crops such as alfalfa, there is little chance for regrowth of small grains depending on the type of damage inflicted by the grasshoppers. There are basically three types of small grain damage: leaf stripping, head clipping, and complete consumption of young plants. The latter two will result in total economic loss of individual plants.

19. The discussion of the species of animals present in the four environmental regions frequently suggested that these regions were home to these animals. The document meant to suggest that the environmental regions may have these species of animals present at one or more times during the year.

20. The comparison of endrin use to the state grasshopper emergency program is not valid for numerous reasons. The grasshopper emergency program was a state supported, cost share program whereas the endrin applications which are mentioned were strictly private. Endrin was not cancelled because of the amount of annual use, but rather for its toxicity, persistence, documented fish kills, and residues found in water fowl and upland game birds. Most of the reported impacts of endrin were due to years of application, not a single seasons application. The grasshopper emergency program allowed for a single application of one of 17 different insecticides of varying toxicity, efficacy, and persistence. This coupled with the fact that the grasshopper emergency program was not an annual program, but rather a response to an unpredictable outbreak of high grasshopper populations makes these two issues quite different.

21. The department believes that most landowners are concerned about the impact of agricultural chemicals on the environment and are becoming more concerned as they receive more education on the subject. Departmental enforcement cases have shown that the general public, producers, and sportsmen do report environmental impacts of pesticides which they observe. Historically, the MDA had the opportunity to report individual fish kills such as in the case of the Sunday Creek fish kill due to endrin in 1981. However, the department agrees that any future state grasshopper control programs should include post treatment monitoring to determine the efficacy and environmental impact of the treatments.

22. Table D-4 lists toxicity categories for human exposure to pesticides whereas Tables 7, 8, and 9 list toxicities for fish and birds.



23. Roadsides have been documented as preferred egg laying sites for grasshoppers. There are 70,000 mile of rural public roadways in Montana, thus road right-of-ways border approximately 140,000 miles of land in Montana. Since cropland makes up about 18% of land area in Montana, 25,200 linear miles (595,000 acres) of cropland may be bordered by road right-of-ways. Right-of-ways receive little or no treatment for pest problems, and thus producers frequently identify right-of-ways as a major source of grasshopper problems.

24. The department appreciates the DFW&Ps concern over impacts to fish and wildlife from insecticides used for grasshopper control. However, it was not the purpose of the PEIS to assess the environmental impacts of individual insecticides registered for grasshopper control, but rather to determine the efficacy and environmental impact of the current grasshopper emergency program and suggest possible alternatives to it.

Cancellation and restriction of insecticides outside of the emergency program is not within the scope of this document. Alternative B3, Targeting State Assistance, could include additional restrictions on the use of insecticides which might further reduce the potential for impact on fish and wildlife populations. Statutes are already in place which would allow for additional restrictions to be placed on insecticides if significant evidence were produced to call for such restrictions.

## **APPENDIX, Rules of the 1985 Grasshopper Emergency Program**

BEFORE THE DEPARTMENT OF AGRICULTURE  
OF THE STATE OF MONTANA

In the matter of the adoption )	NOTICE OF THE ADOPTION OF
of emergency rules pertaining )	EMERGENCY RULES PERTAINING
to the Cropland Insect )	TO THE CROPLAND INSECT AND
Detection and Spraying )	SPRAYING PROGRAM
Program )	

TO: All Interested Persons.

1. On June 11, 1985 Governor Schwinden declared a state of emergency regarding a grasshopper infestation in the state of Montana. This declaration utilizes Title 80, Chapter 7, Part 5, Montana Code Annotated (MCA), to provide a mechanism for the equitable distribution of funds to counties that participate in an insect pest control program.

The Department of Agriculture has determined that grasshoppers exist in such numbers that they are destroying, substantially damaging, or threatening to destroy agricultural crops.

The department must adopt the following rules immediately, without prior notice or hearing, in order to ensure equity in the distribution of the funds to participating counties. The department finds that an imminent peril to the public welfare requires adoption of these rules.

2. The text of the rules is as follows:

RULE I DECLARATION OF INFESTATION (1) The department shall make a declaration of infestation in a county before that county may participate in the cropland spraying program with the state.

(2) This declaration shall be based upon sampling standards acceptable to the department that demonstrate that insect pests exist in sufficient numbers so as to cause an economic impact on the crops in the county.

AUTH: 80-7-507, MCA

IMP: 80-7-502, MCA

RULE II MANAGEMENT AGREEMENT (1) The department and county may enter into a pest-management agreement upon the county's demonstration that it meets all necessary requirements for participation in the program, including any requirement specified for the use of the state's available funding.

(2) The department shall enter into an agreement with each participating county which shall include the following provisions:

(a) Specify targeted pest(s).

(b) Specify that the state may provide up to a maximum dollar amount of that county's two-mill levy not to exceed the one-third limit established in 80-7-504, MCA. Final payment will be made as identified in Rule V.

(3) Specify that all applicators participating in the program must use federal/state registered pesticides specifically approved for the target pest.

(4) Specify the time for which all applicator operations must be completed in order to be part of the program.

(5) Specify the maximum dollar amount per acre of the state's share which shall not exceed \$2.00 per acre of the acres that may qualify for state financial participation.

(6) Specify the deadline for parties to submit claims for reimbursement of payments.

(7) Designate the person(s) administering the program for the county.

(8) Specify any other provisions necessary to fulfill the requirements of the program.

AUTH: 80-7-507, MCA

IMP: 80-7-503, 80-7-504, MCA

RULE III GRASSHOPPER TARGET PESTS (1) When grasshoppers are the target pests, then the agreement with the county shall specify that all contracts for applying the pesticide must be made on or before June 30 and all applications shall be completed on or before July 15th of the year.

AUTH: 80-7-507, MCA

IMP: 80-7-503, 80-7-504, MCA

RULE IV LANDOWNER APPLICATION OF PESTICIDES (1) For the purpose of these rules, the definition of landowner includes the person responsible for the crop.

(2) In the event the county elects to have the landowner conduct the application of pesticides or have the landowner contract to have the pesticides applied on his lands, then:

(a) The landowner must comply with all requirements of these rules and he must pay for all chemical and application costs incurred on or before September 1 of the year.

(b) The landowner must:

(i) Submit proof of payment for the pesticide and/or the applicator services demonstrating that the application occurred on or before July 15 and that the contract for these services occurred on or before June 30.

(ii) Verify by affidavit that the application was made if the landowner applied the pesticide.

(iii) Specify the number of acres sprayed.

(iv) Specify the type of pesticide applied and if it was mixed with any other nontarget pesticide.

(v) Submit all the claims to the county on or before September 1.

(3) In the event the landowner fails to meet the requirements of these rules, then any application of pesticides to his land shall be considered outside of the program and he shall be ineligible for reimbursement.

AUTH: 80-7-507, MCA

IMP: 80-7-503 80-7-504, MCA

RULE V DETERMINATION OF THE STATE'S PAYMENT TO THE COUNTY (1) The county shall submit to the department on or



before October 1 the number of acres sprayed in that county, number of participating landowners, and total costs submitted under the program.

(2) The department shall determine the total number of acres sprayed in the state under the program.

(3) The department shall pay each participating county a pro rata share of the 1985 biennium emergency appropriation fund balance as of June 30, 1985. Each county's share shall be based upon the percentage of that county's qualified acres to the total program acres qualified in the state. In no event shall the state pay the county an amount in excess of the stipulated maximum amount as provided in the agreement or more than \$2.00 per acre or more than the limit established in Section 80-7-504, MCA.

AUTH: 80-7-507, MCA

IMP: 80-7-503, 80-7-504, MCA

RULE VI REIMBURSEMENT TO LANDOWNERS (1) The landowner shall be reimbursed by the county following his compliance with Rule IV and the state's disbursement of money to the county.

(2) The county may determine the reimbursement of the landowners from the fund consisting of the state's share and the county's share.

(3) In no event shall the landowner be paid an amount greater than his cost of supplies and services.

(4) In the event the program costs fail to equal the actual costs of applying the pesticide, the added expenses shall be incurred by the landowner.

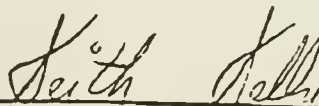
AUTH: 80-7-507, MCA

IMP: 80-7-504, MCA

3. The rationale for the proposed rules are set forth in the statement of reasons for emergency.

4. These rules are authorized under section 80-7-507, MCA. They implement Title 80, Chapter 7, Part 5, MCA.

The emergency action is effective June 12, 1985.

  
\_\_\_\_\_  
Keith Kelly  
Director

Certified to the secretary of state June 12, 1985

STATE OF MONTANA

DEPARTMENT OF AGRICULTURE

(1) I, Keith Kelly, Director of the Department of Agriculture of the State of Montana, by virtue of and pursuant to the authority vested in me by 80-2-102, MCA do promulgate and adopt the annexed rules to wit:

NEW: Subchapter 16	Cropland Insect Detection and Spraying Program
NEW: 4.10.1601	Declaration of Infestation
NEW: 4.10.1602	Management Agreement
NEW: 4.10.1603	Grasshopper Target Pests
NEW: 4.10.1604	Landowner Application of Pesticides
NEW: 4.10.1605	Determination of the State's Payment to the Counties
NEW: 4.10.1606	Reimbursement to Landowners

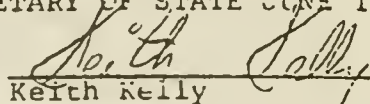
as emergency rules of this department.

(2) This order after first being recorded in the order register of this department shall be forwarded to the secretary of state for filing.

APPROVED AND ADOPTED JUNE 12, 1985

CERTIFIED TO THE  
SECRETARY OF STATE JUNE 12, 1985

BY:

  
Keith Kelly  
Director



